

Serial No. 09/933,315

- 2 -

Art Unit: 2872

REMARKS

Claims 1-4 are pending in the present application. Reconsideration and re-examination is respectfully requested in view of the below amendments and remarks.

Claim 1 was provisionally rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claim 1 of co-pending application no US2002/0109873 A1. The examiner has indicated that 1) this is a provisional rejection and 2) that it can be overcome with the timely filing of a terminal disclaimer. Given that the scope of allowable subject matter is still in dispute, Applicants have not filed a terminal disclaimer at this point in the proceedings, but will do so if the double patenting rejection is maintained once the scope of the allowable claim is resolved.

Rejections of the Claims

Claims 1-3 were rejected under 35 U.S.C. §102(a) as anticipated by Brzozowski et al. Claim 4 was rejected under 35 U.S.C. §102(a) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Brzozowski et al.

Applicants' have petitioned to correct inventorship of the present application, on which Lukasz Brzozowski was inadvertently, without deceptive intent, omitted from the list of

Serial No. 09/933,315

- 3 -

Art Unit: 2872

inventors. In satisfaction of 35 C.F.R. §1.48, Applicants have submitted herewith a petition to correct inventorship, an affidavit of the inventor that the omission occurred without deceptive intent, written consent to change of inventorship, executed by the assignee pursuant to 37 C.F.R. §3.73(b) and the appropriate fee.

In view of the submitted documents, it is respectfully asserted that the Brzozowski reference may not be applied pursuant 37 C.F.R. §102(a). Therefore the rejections under 35 U.S.C. §102(a) for claims 1-4, and of claim 4 under 35 U.S.C. §103 based on Brzozowski have been overcome and should be withdrawn.

Claims 1 is rejected under 35 U.S.C. §102(b) as being anticipated by Smith, U.S. Patent 4,507,776.

Smith, U.S. Patent 4,507,776:

Smith describes a nonlinear optical time-division multiplexer and demultiplexer formed from a cascaded plurality of triggerable optical switching elements. The exemplary triggerable optical switching element comprises a nonlinear optical material disposed in a ring resonator arrangement. The triggerable optical switching element includes a nonlinear optical material 20 and an arrangement of mirrors 22, 24 and 26.

Smith describes, in column 3 lines 13-20 "... In accordance with the present invention, bistable non-linear optical device 15 comprises a non-linear material 20 whose refractive index is

Serial No. 09/933,315

- 4 -

Art Unit: 2872

a function of the intensity of the light passing therethrough, and can be represented by the following equation:

$$n(I) = n_0 + n_2 I.$$

where n_0 is the refractive index at zero intensity, n_2 is the non-linear coefficient of nonlinear material 20 and I is the intensity of light within the material 20.”

Thus, as the intensity of light increases, it would appear that the intensity of the output signal also increases (as it is multiplied by the non-linear coefficient of nonlinear material 20). Thus, there is no teaching in Smith of a situation where the output intensity is ‘limited’, as is evident in the language of claim 1, which now includes “...a third range bounded by input signals in the range above approximately I_2 in which the transmitted output signal of the stable, non- absorbing optical hard limiter is approximately I_2 ...”

In addition, Applicants note that the optical device of Smith includes a number of external mirrors, which operate to provide the multiplexer functionality. In contrast, the claimed invention is directed towards an *integrated* device.

Accordingly, for at least the reason that Smith fails to teach or describe several limitations of the claim, claim 1 is patentably distinct over Smith and the rejection should be withdrawn.

Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Smith in view of Cuykendall et al.

Cuykendall describes, in the Abstract “Experimental studies of a nonlinear interface have indicated that saturation of the nonlinear refractive index may play a critical role in controlling the transition from total internal reflection to nearly total transmission. Numerical simulations of

Serial No. 09/933,315

- 5 -

Art Unit: 2872

the behavior of a saturated nonlinear interface confirm that saturation effects can dramatically improve transmitted beam shape and switching quality...”

Cuykendall's main focus is on saturating the nonlinear interface for improved switching. The combination of Cuykendall with Smith fail to overcome the above described inadequacies with Smith, and for at least this reason this rejection is overcome and should be withdrawn.

Claims 1-2 are rejected under 35 U.S.C. §103(a) as being unpatentable over Salehi et al (“Code division multiple-access techniques in optical fiber networks”) in view of Kahn (“Optical power limiting in multilayer systems with nonlinear response”).

Salehi describes a technique to establish a fiber-optic-code division multiple-access (FO-CDMA) communications system. In particular, they describe a need for a new class of signature sequences that satisfy the auto- and cross correlation properties that are used in FO-CDMA systems. In addition, they discuss a means of reducing the effective multiple-access interference signal by lacing an optical hard-limiter at the front end of the desired optical correlator.

Kahn describes a study of optical power limiting in multi-layer systems where layers exhibit non-linear response.

However, the combination of Kahn and Salehi fail to teach or describe the newly added limitations to claim 1, and accordingly the rejection is overcome and should be withdrawn.

Serial No. 09/933,315

- 6 -

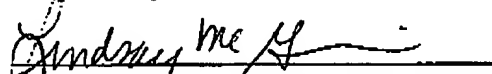
Art Unit: 2872

Applicants have made a diligent effort to place the application in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Lindsay McGuinness, Applicants' Attorney at 978-264-6664 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

7/12/2004
Date

Respectfully Submitted,


Lindsay McGuinness, Reg. No. 38,549
Attorney/Agent for Applicant(s)
Steubing McGuinness & Manaras LLP
125 Nagog Park Drive
Acton, MA 01720
(978) 264-6664

Docket No. 120.128
dd: 5/11/2004